



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,157	10/31/2001	Yongming Sun	DEX-0253	4681
7590 03/30/2004				
Licata & Tyrrell P.C. 66 East Main Street Marlton, NJ 08053		EXAMINER SMITH, CAROLYN L		
		ART UNIT PAPER NUMBER		
		1631		
DATE MAILED: 03/30/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/016,157

**Applicant(s)**

SUN ET AL.

**Examiner**

Carolyn L Smith

**Art Unit**

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/8/03, 11/12/03, and 2/9/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1631

### DETAILED ACTION

Applicant's amendments and remarks, filed 9/8/03, 11/12/03, and 2/9/04, are acknowledged. Amended claims 1-5 and 8 are acknowledged.

Applicant's arguments, filed 9/8/03, 11/12/03, and 2/9/04, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from the previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 1-5, 7, and 8 are herein under examination.

### PATENTABLE UTILITY GUIDELINES

The pending claims have been reviewed in light of the Utility Examination Guidelines and Guidelines for Examination of Patent Applications under 35 U.S.C. 112, first paragraph, "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1092-1111, Friday, January 5, 2001.

The examiner is using the following definitions in evaluating the claims for utility.

"Specific" - A utility that is *specific* to the subject matter claimed. This contrasts with a *general* utility that would be applicable to the broad class of the invention.

"Substantial" - A utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities.

"Credible" - Credibility is assessed from the perspective of one of ordinary skill in the art in view of the disclosure and any other evidence of record that is probative of the applicant's assertions. That is, the assertion is an inherently unbelievable undertaking or involves implausible scientific principles.

Art Unit: 1631

"Well-established" - a specific, substantial, and credible utility which is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art.

***Claims Rejected Under 35 U.S.C. § 101***

35 U.S.C. § 101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

The rejection of claims 1-5, 7, and 8 is maintained under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by a specific, substantial, and credible utility or, in the alternative, a well-established utility.

This rejection is maintained and reiterated for reasons of record.

The critical limitation of claims 1-5, 7, and 8 is the nucleotide sequence of the claimed nucleic acids, vector and host cell, SEQ ID NO: 5. The claimed nucleic acid, vector, and host cell are not supported by a specific utility, because the disclosed uses of these compositions are not specific and are generally applicable to the colon cancer polynucleotides. The specification states the polynucleotides can be used in diagnostic methods (page 95) and monitoring colon cancer in patients (page 101). The specification summarizes general sequence uses in modern biotechnology (i.e. making pharmaceutical compositions (page 105)), but never connects the specifically elected sequence (SEQ ID NO: 5) to any particular or available utility. The above-mentioned list of possible utility for the claimed sequence falls short of a readily available utility.

Art Unit: 1631

These are non-specific uses that are applicable to many polynucleotides, vectors and host cells, and are not particular or specific to the polynucleotides, vectors, and host cells being claimed.

Further, these claimed polynucleotides, vectors, and host cells are not supported by a substantial utility, because no substantial utility has been established for the claimed subject matter. SEQ ID NO: 5 may indeed be the sequence found in cancerous colon; however, further research would be required to confirm a “real world” context of use. For example, basing gene expression analysis solely on a CLASP software program does not immediately identify a real world use. Also, identifying a sequence itself does not define a “real world” context of use.

Applicant should explicitly identify a specific, substantial, and credible utility for the claimed invention and establish a probative relation between any evidence of record and the originally disclosed properties of the claimed invention.

Due to a lack of either an art recognized or alleged well established utility, the instant invention has been rejected due to also lacking the required combination of a specific, substantial, and credible utility. Although it may be credible that the polynucleotide of SEQ ID NO: 5 is only differentially expressed in cancerous colon tissue, the lack of a specific and substantial utility, as explained above, sufficiently supports this rejection.

Applicants state that the specification discloses a specific biological activity for SEQ ID NO: 5, including Example 1 on pages 116-121 with CLASP scores which are indicative of this nucleic acid sequence exhibiting statistically significant expression in colon cancerous tissue and undetectable expression in normal tissue. This statement appears to be an assertion without

Art Unit: 1631

factual support. As suggested previously, additional data showing this asserted significance in expression differences among colon cancer tissue versus normal colon tissue is requested.

***Claim Rejections – 35 U.S.C. 112, first paragraph***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized in *Ex parte Forman*, 230 USPQ 546 (BPAI 1986) and reiterated by the Court of Appeals in *In re Wands*, 8 USPQ2d 1400 at 1404 (CAFC 1988). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. The Board also stated that although the level of the skill in molecular biology is high, the results of experiments in genetic engineering are unpredictable. While all of these factors are considered, a sufficient amount for a *prima facie* case are discussed below.

**LACK OF ENABLEMENT**

The rejection of claims 1-5, 7, and 8 is maintained under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the claimed invention.

Art Unit: 1631

This rejection is maintained and reiterated for reasons of record.

For a sequence putatively assigned a biological function, even if correct, does not appear to be defined as to what use it is to be applied. The significance of the sequence is unconfirmed, further rendering it indiscernible how someone of skill in the art would use such an entity.

Due to the large quantity of experimentation necessary to determine activity or property of the disclosed nucleic acid, vector, and host cell, such that it can be determined how to use the claimed sequence, the lack of direction/guidance presented in the specification regarding the same, and the breadth of the claims which fail to recite a particular biological activities, the specification fails to teach the skilled artisan how to use the claimed invention.

Without further data or sound scientific reasoning, it appears speculative whether the polynucleotide of SEQ ID NO: 5 plays a role in any of the asserted utilities as discussed above in the 35 U.S.C. § 101 rejection. Relying on predictions of biomolecule function based on a computer program (CLASP™) is unpredictable (see third to last paragraph of the 35 U.S.C. § 101 rejection). With this in mind, additional evidence is necessary in order to satisfy the current lack of enablement. Several options exist to overcome this lack of enablement issue, such as supplying additional data or other scientific reasoning that would lead one of ordinary skill in the art to be able to make and/or use the present invention.

Also, since the claimed invention is not supported by a specific, substantial, and credible utility or a well-established utility for the reasons set forth above (refer to the 35 U.S.C. § 101 rejection), one skilled in the art would not know how to use the claimed invention.

Art Unit: 1631

## LACK OF WRITTEN DESCRIPTION

The rejection of claims 1-5, 7, and 8 is maintained under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time of the invention was filed, had possession of the claimed invention.

This rejection is maintained, necessitated by amendment, and reiterated for reasons of record.

The specification discloses SEQ ID NO: 5 that corresponds to a nucleic acid sequence. SEQ ID NO: 5 and its full complement meet the written description provisions of 35 U.S.C. 112, first paragraph. However, claims 1-5, 7, and 8 are directed to encompass sequences that do not meet the written description provision of 35 U.S.C. 112, first paragraph. Please note the "99.5% identity" as recited in claim 1 (line 10), could also contain sequences including the entire sequence of SEQ ID NO: 5 plus up to 0.5% of additional sequence on either end of SEQ ID NO: 5 which fails to meet the written description provision of 35 U.S.C. 112, first paragraph. The specification provides insufficient written description of actual sequences with 99.5% identity to support the genus encompassed by these claims.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed*." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.)

With the exception of SEQ ID NO: 5, the skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides and/or proteins, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606



Art Unit: 1631

(CAFC 1993) and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

...To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." *Lockwood*, 107 F.3d at 1572, 41 USPQ2d at 1966.

Therefore, only SEQ ID NO: 5, but not the full breadth of the claims, meet the written description provision of 35 USC 112, first paragraph. The species specifically disclosed are not representative of the genus because the genus is highly variant. Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115.)

Applicants state the claims as amended describe distinguishing identifying characteristics sufficient to show that applicants were in possession of the invention. The specification discloses SEQ ID NO: 5 that corresponds to a nucleic acid sequence. SEQ ID NO: 5 and its full complement meet the written description provisions of 35 U.S.C. 112, first paragraph. It does not appear that Applicants have shown adequate written support for sequences with only 99.5% identity to the nucleic acid molecule of (a) or (b) of instant claim 1. These sequences with 0.5% difference from SEQ ID NO: 5 or encoding SEQ ID NO: 151 have not been sufficiently described in the specification, drawings, or claims as originally filed to lead one of skill in the art

Art Unit: 1631

to believe that Applicants were in possession of these sequences as well. Therefore, this written description rejection is necessitated by amendment.

### ***Conclusion***

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and

Art Unit: 1631

1157 OG 94 (December 28, 1993) (See 37 CFR §1.6(d)). The CM1 Fax Center number is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carolyn Smith, whose telephone number is (571) 272-0721. The examiner can normally be reached Monday through Thursday from 8 A.M. to 6:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instruments Examiner Tina Plunkett whose telephone number is (571) 272-0549.

March 24, 2004

*Ardin H. Marschel*  
ARDIN H. MARSCHEL 3/26/04  
PRIMARY EXAMINER